

Amendment

Applicant: Michael Paul Tankard et al.

Serial No.: 10/656,815

Filed: September 5, 2003

Docket No.: K315.130.101

Title: MEASUREMENT OF THE RATE OF CHANGE OF CURRENT IN SWITCHED RELUCTANCE MACHINES

REMARKS

Claims 1-23 are pending. By this Amendment, claim 18 is amended to address a typographical informality unrelated to patentability.

The November 25, 2005 Office Action rejected claims 1-23 under 35 U.S.C. § 102(e) over Jitaru (U.S. Patent No. 6,380,727). Applicant respectfully traverses this rejection.

Independent claims 9 and 12: Jitaru includes no switched reluctance drive

Independent claim 9 recites a switched reluctance drive including a motor having a rotor defining a plurality of rotor poles, and a stator defining a plurality of stator poles. Note e.g. claim 9, lines 1-2. Independent claim 12 recites similar features, in lines 1-2. Nowhere within the four corners of Jitaru, however, is there any disclosure of a switched reluctance drive, a rotor, rotor poles, a stator, or stator poles. Because Jitaru fails to disclose a switched reluctance drive and other recited features, Jitaru cannot anticipate independent claims 9 and 12 under 35 U.S.C. § 102. Accordingly, Applicant submits that the 35 U.S.C. § 102 rejection of independent claims 9 and 12, and their respective dependent claims 10-11 and 13-15, is improper and should be withdrawn.

Jitaru: Each turn of the coil is *not* displaced from its neighboring turn in a direction parallel to the direction of the conductor

Independent claim 1 recites a conductor in which rate of change of current is to be sensed. Each turn of a coil recited in the claim is displaced from its neighboring turn in a direction parallel to the direction of the conductor (see claim 1, lines 2-4, for example).

Independent claim 9 recites at least one conductor comprising a phase winding and a sensor

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connected to sense the rate of change of current in a phase winding. Each turn of a coil recited in the claim is displaced from its neighboring turn in a direction parallel to the direction of the conductor (see claim 9, lines 2-4 and 6-7, for example). Independent claim 12 recites similar features; note lines 2-4 and 6-7, for example.

Contrary to what is claimed, Jitaru's conductor under test (e.g. 8, 9) is in a direction *perpendicular* to the direction of displacement of neighboring turns in Jitaru, instead of *parallel* thereto as claimed. Conductor 8, 9 extends in the direction of current arrows 10, 11 in Jitaru, whereas neighboring turns of sensor 100 extend in the direction of coil axis CA. Coil axis CA is *perpendicular* to current arrows 10, 11, not parallel thereto. Jitaru simply fails to teach or suggest the claimed arrangement, in which neighboring turns of each of the coils are displaced from each other in the claimed direction, *parallel* to the direction of the conductor. Accordingly, Applicant submits that Jitaru fails to anticipate independent claims 1, 9, and 12 or their respective dependent claims.

More specifically, Jitaru discloses in Figures 4A-4C (see column 3, lines 30-41) a two-layer PCB with an upper layer 9, a bottom layer 8 and a current sensor formed on the PCB layers with upper layer traces 12 and bottom layer traces 13 connected by vias 4 to form a coil in which each turn is displaced from its neighboring turn along coil axis CA. From Figures 4A-4C it can be seen that coil axis CA is perpendicular to the direction of current (arrows 10, 11), which current is carried by PCB copper traces as current-carrying conductors (see e.g. column 1, lines 33-35). Accordingly, the direction in which neighboring turns are displaced with respect to each other (axis CA) is *perpendicular* to the direction of the conductor(s) indicated by arrows 10, 11.

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Thus, contrary to what is claimed, each turn is not displaced from its neighboring turn in a direction parallel to the direction of the conductor. Accordingly, Applicant submits that independent claims 1, 9, and 12 are not anticipated or rendered obvious by Jitaru.

Attention also is directed to the dependent claims, which recite additional features not taught or suggested by Jitaru. For example, dependent claim 18 recites that the conductor defines an axis along which current in the conductor flows, and that the sensor comprises a plurality of vias extending through the printed circuit board, the vias as viewed in cross-section together forming a line of vias extending in a direction parallel to the axis. In Jitaru, on the other hand, the line(s) of vias extend(s) in a direction perpendicular to the axis along which current in the conductor flows, the axis extending in the direction of arrows 10, 11.

Dependent claim 20 recites that each turn forms a staggered overlap with adjacent turns of the coil. Jitaru fails to teach or suggest this feature. Dependent claim 22 recites a plurality of vias extending through the printed circuit board, the plurality of vias forming a pair of lines of vias, each line of vias extending in a direction parallel to the direction of the conductor. Jitaru fails to teach or suggest this feature.

Conclusion

In view of the foregoing, Applicant submits that this application is in condition for allowance. Favorable reconsideration and prompt allowance are requested. The Commissioner is hereby authorized to grant any extensions of time and to charge any fees under 37 C.F.R.

§ 1.16 and § 1.17 that may be required during the entire pendency of this application, or to credit any overpayment, to Deposit Account No. 500471.

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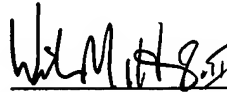
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MACHINES

The Examiner is invited to telephone the undersigned to advance prosecution.

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Respectfully submitted,



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Please grant any extension of time necessary for entry; charge any fee due to Deposit Account No. 500471.

CERTIFICATE UNDER 37 C.F.R. 1.8:

The undersigned hereby certifies that this paper or papers, as described herein, are being deposited in the United States Postal Service, as first class mail with sufficient postage, in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 24th day of February, 2006.

By 
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